

THE BENCHMARK IN CAR AIR PURIFICATION TECHNOLOGY



SHEPROS®

Safety, Health & Environmental Product Solutions

Indoor Air Quality Hazards of Cars

Results of recent studies indicate that levels of airborne chemicals in new car interiors are significantly higher than the recommended Indoor Air Quality standard. The new car smell fades and levels of these chemicals can drop over time. Unfortunately, these airborne chemicals can increase when excessive heat builds up in lock cars during the hot days, causing the levels to rise again.

Car pollutants can come from exterior pollutants and interior chemical mixtures which are emitted from materials and finishes used to make car interiors, such as plastics, wood, leather, textiles, seat cushions, glues and sealants. Below are some of the typical pollutants in the car:

- Volatile organic compounds (VOCs)
- Formaldehyde
- Polybrominated diphenyl ethers (PBDEs)
- Phthalic acid esters (phthalates)
- Human body odor
- Cigarette smoke
- PM 2.5
- Carbon monoxide
- Bacteria and virus

Indoor Air Quality and Health

Health effects from indoor air pollutants may be experienced soon after exposure or possibly years later.

Immediate effects may show up after a single exposure or repeated exposures. These include irritation of the eyes, nose, and throat, headaches, dizziness, and fatigue. Such immediate effects are usually short-term and treatable.

Long term effects may show up either years after exposure has occurred or after long repeated periods of exposure. These effects, which include some respiratory diseases, heart disease, and cancer, can be severely debilitating or fatal.



Typical Health Threats Due to Indoor Air Quality

Red Eyes

Red eyes often are referred to as "allergy eyes," given that eye redness is a common indicator of an allergic reaction. When your immune system reacts to a foreign substance, such as pollen, pet dander, dust and certain chemicals found in household cleaners.



Rhinitis

Rhinitis is a term describing the symptoms produced by nasal irritation or inflammation. Symptoms of rhinitis are due to blockage or congestion. They include:

- Runny nose
- Itching
- Sneezing
- Stuffy nose due to blockage or congestion

These symptoms are the nose's natural response to inflammation and irritation. The nose normally produces mucus to trap substances (like dust, pollen and chemical pollution) and germs (bacteria and viruses).



Sore Throat Allergies

Sore throat allergies can be caused by several things most common of course is the flu or a cold but less often, a bacterial infection and allergic reactions may cause sore throat allergies. There are other causes for sore throat allergies such as indoor air that is dry due to winter weather and dry heat, especially in the morning.

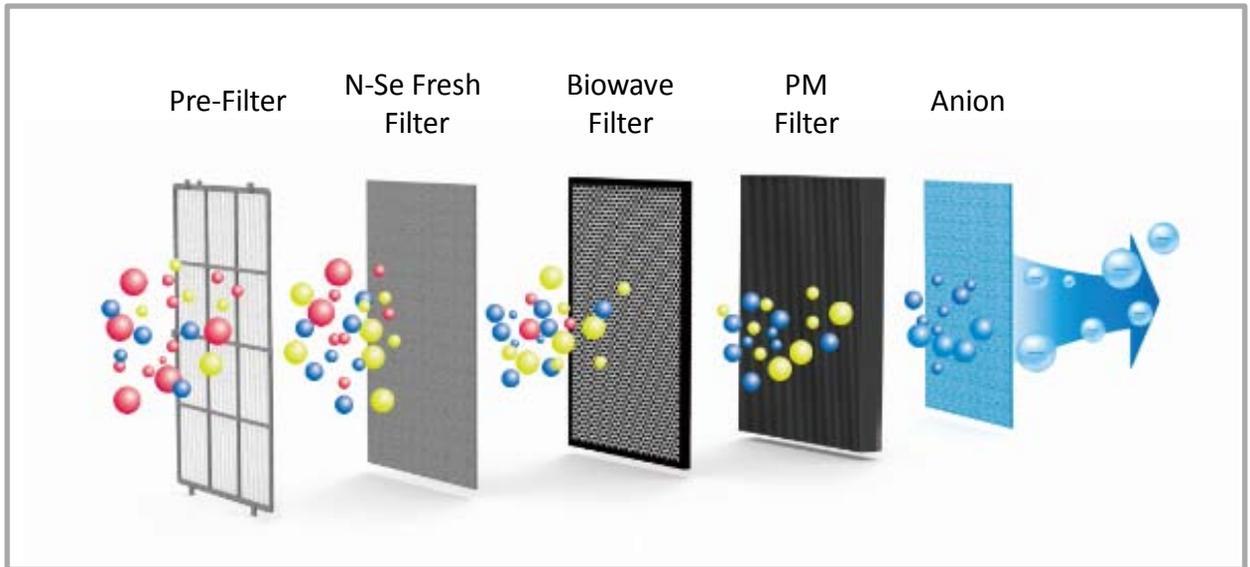


Airborne Irritant Contact Dermatitis

With airborne irritant contact dermatitis, a patch of tiny, scaly blisters crops up in an area of the face, neck, hand, waist, groin or wrist. Almost any skin sensitive child or adult can develop airborne irritant contact dermatitis after prolonged exposure to a naturally irritating substance such as pollen, pet dander, dust or certain chemicals found in household cleaners.



High Performance Air Filtration Technology



Pre-Filter is used to keep large particles and debris such as hair, dust, pet fur and other larger particles from entering the air purifier. Without a pre-filter these larger particles would clog HEPA. The pre-filter is reusable and can be vacuumed or rinsed and then put back to work.

N-Se Fresh Filter is made from a combination of Nano Selenium Technology developed by Brown University (USA) and Hi-tech Carbon Fabric developed by United Kingdom military for Biological Chemical warfare. The application of this novel technology in air purification is very efficient for the removal of pathogens, odors, volatile organic compounds (VOCs), smoke and radon contaminants. It adsorbs a large volume of organic or inorganic molecules from various gases and acts as a high purity filter. It has a micro-porous structure which results in rapid adsorption kinetics and the capability to adsorb to a higher level of purity. Unlike activated carbon filter, N-Se Fresh Filter is suitable for use in applications where there is a high humidity as its adsorption capacity is less adversely affected by moisture.

BIOWAVE Filter is made of crystalline solid structures of silicon, aluminum and oxygen that form a framework with cavities and channels inside where cations, water and/or small molecules may reside. BIOWAVE's porous crystalline structure provides nano-pores or "cages" which have high affinity to adsorb air pollutants such as volatile organic compounds (VOCs), odors, photochemical smog and ionizing radiation particles.

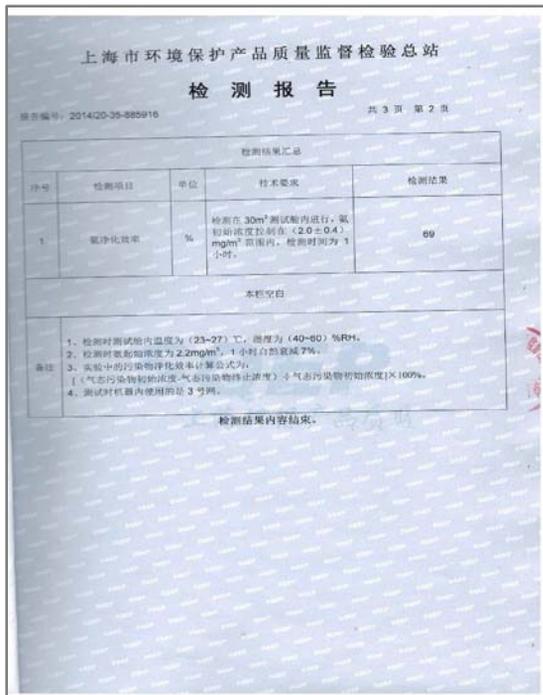
PM Filter is used to trap small particles up to 0.3 μm that may cause problems for allergy sufferers and others with health problems.

Anion Generator is a device that ionize air molecules. It eliminates suspended air pathogens and fine particles in the air.

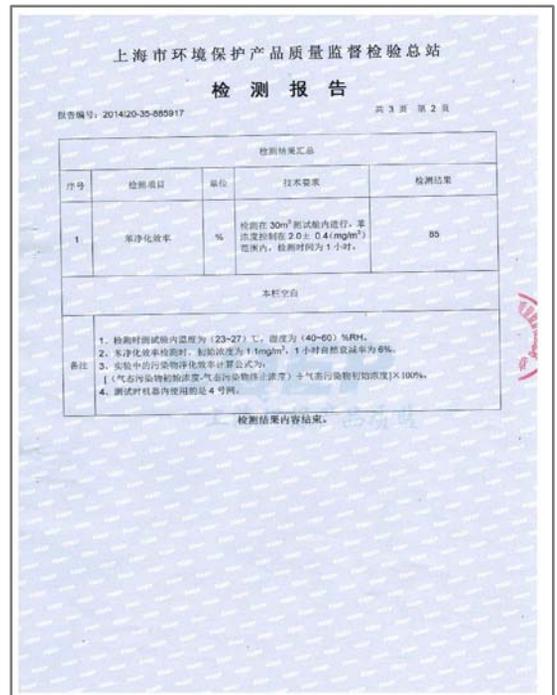
Air Filtration Test Reports

Our filter system has been tested in Shanghai Environmental Products Quality Supervision & Test Center and Guangzhou Testing center of Industrial Microbiology based on Air-cleaning Appliances, GB/T 18801-2008 Air Cleaner and GB/T 18883 – 2002 Indoor Air Quality Standard .

PERFORMANCE SPECIFICATIONS (1 HOUR TEST)		
1.	Ammonia	69%
2.	Benzene	85%
3.	Formaldehyde	86%
4.	Particulate Matter 2.5 μm (PM 2.5)	> 99%
5.	Staphylococcus Bacteria	99.95%
6.	Total Volatile Organic Compounds (TVOC)	>99%



AMMONIA



BENZENE

Air Filtration Test Reports

上海市环境保护产品质量监督检验总站
检测报告

报告编号: 2014120-35-805914 共 3 页 第 2 页

检测项目汇总				
序号	检测项目	单位	技术要求	检测结果
1	甲醛净化效率	%	标准在 30m ³ 测试舱内进行, 甲醛初始浓度控制在 (1.0±0.2) mg/m ³ 范围内, 检测时间为 1 小时。	99
本栏空白				
备注: 1. 检测时测试舱内温度为 (23-27) °C, 湿度为 (40-60) %RH; 2. 检测时甲醛初始浓度为 1.1mg/m ³ , 1 小时自然衰减 7%。 3. 实验中的污染物净化效率计算公式为: [(气态污染物初始浓度-气态污染物终止浓度)÷气态污染物初始浓度]×100%。 4. 测试时机器内使用的是 1 号网。				
检测结束内容结束。				

FORMALDEHYDE

上海市环境保护产品质量监督检验总站
检测报告

报告编号: 2014120-35-805910 共 3 页 第 2 页

检测项目汇总				
序号	检测项目	单位	检测结果	
1	可吸入颗粒物 (以粒径 ≤ 2.5μm 计) 洁净空气量	m ³ /h	453	
2	可吸入颗粒物 (以粒径 ≤ 2.5μm 计) 净化效率	%	10min	92
			20min	99
			30min	>99
			40min	>99
			50min	>99
			60min	>99
本栏空白				
备注: 1. 测试条件: 体积: 30m ³ , 温度: (23-27) °C, 湿度: (40-60) %RH; 2. 测试方法: 测试以普通滤袋为尘源, 以计算法测试粒径 ≤ 2.5μm 的可吸入颗粒物, 初始浓度控制在 (5.0±0.5) mg/m ³ 范围内, 60min 自然衰减小于 10%。 3. 实验中的污染物净化效率计算公式为: 污染物净化效率 = [(初始浓度-终止浓度)÷初始浓度]×100%。				
检测结束内容结束。				

PM 2.5

上海市环境保护产品质量监督检验总站
检测报告

报告编号: 2014120-35-805915 共 3 页 第 2 页

检测项目汇总				
序号	检测项目	单位	技术要求	检测结果
1	总挥发性有机物净化效率	%	标准在 30m ³ 测试舱内进行, 总挥发性有机物初始浓度控制在 (6.0±1.2) mg/m ³ 范围内, 检测时间为 1 小时。	>99
本栏空白				
备注: 1. 检测时测试舱内温度为 (23-27) °C, 湿度为 (40-60) %RH; 2. 检测时总挥发性有机物初始浓度为 0.2mg/m ³ , 1 小时自然衰减 8%。 3. 实验中的污染物净化效率计算公式为: [(气态污染物初始浓度-气态污染物终止浓度)÷气态污染物初始浓度]×100%。 4. 测试时机器内使用的是 2 号网。				
检测结束内容结束。				

TVOC


 检测编号: WJ20146197
 Test No.

广州工业微生物检测中心
GUANGZHOU TESTING CENTER OF INDUSTRIAL MICROBIOLOGY
检测报告
REPORT FOR ANALYSIS

收样日期: 2014 年 12 月 29 日 检测日期: 2015 年 1 月 5 日
Date Received Date Analyzed

样品编号	作用菌种	试验前平均菌数 F ₁ (cfu/m ³)	试验后平均菌数 F ₂ (cfu/m ³)	自然消亡率 N ₁ (%)	试验后平均菌数 F ₃ (cfu/m ³)	除菌率 K ₁ (%)
WJ20146197-1	金黄色葡萄球菌	1.67×10 ⁷	1.36×10 ⁷	18.56	1.68×10 ⁷	69.9953
以下空白 Blank Below						

编辑: 柯小强 审核: 柯小强 签发: 柯小强 报告日期: 2015.1.9
 Editor: 柯小强 Checker: 柯小强 Issuer: 柯小强 Date Reported: 2015.1.9
 第 3 页, 共 3 页

STAPHYLOCOCCUS BACTERIA